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Drug Tests for Needy Families, The Five-Minute Analyst

Schramm, Harrison

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Drug tests for needy families

New Florida bill requires welfare applicants to take a drug test to continue receiving benefits. Will the policy save the state money?

BY HARRISON SCHRAMM

The state of Florida has signed into law a bill that requires welfare applicants to take a drug test to continue receiving benefits [1, 2]. A twist to this law is that applicants will pay for the drug test out of pocket. If they pass the drug test, their fee ($10-$25) [3] will be reimbursed, and they will continue to receive benefits under the Temporary Assistance for Needy Families program (TANF) for six months. The value of this benefit is $300 per month. Approximately 4,000 persons apply for the benefit each month.

Will this policy save money for Florida? Let's examine the policy mathematically from four points of view:

A. THE STATE'S POINT OF VIEW: PERFECT DRUG TESTING

Let:

N = Number of applicants = 4000

P_D = proportion of drug users

B = payout per time period = 1800

C_R = rebate Cost = 3

C_T = Test Cost = 10

The cost of the program with no drug screening is: NB=$7.2 million

The cost of the program with drug screening is: $N(1-P_D)(C_R+C_T+B)$

Assuming 10 percent applicant drug use, the cost of the program with perfect drug testing is $6.5 million, with a net savings to the taxpayers of $700,000. Drug testing will be cost effective [4] if the proportion of drug users who apply for aid is greater than 1 percent.

Consider now an imperfect drug test – one that is susceptible to both false positives [5] and false negatives [6]. A "decision tree" for an imperfect drug test is shown in Figure 1:

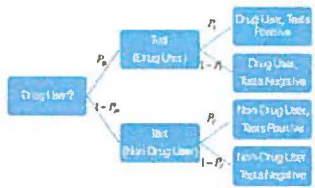

Figure 1: Imperfect drug test decision tree.

B. THE DRUG USER'S DECISION

A drug user is interested in the outcome "drug user, tests negative," and specifically in the rate of false positives that make the benefit of assistance (weighted by his probability of getting it) equals his potential loss paying for the test [7]. A drug user should take the test if it has a false-negative rate ≥ .5 percent. As a policy implication, drug users will want the state to choose the most inexpensive test available, as it makes the price of entering the "lottery" cheaper. An inexpensive drug test may also have a higher false positive rate.

C. THE NON-DRUG USER'S DECISION

An applicant who does not use drugs should not use an expected value model for their decision; the assistance program is not a lottery to them but rather a means to survive. Assuming the refund for the test is timely, non drug-users will want the state to have the test that will have the lowest false positive rate P_F regardless of expense.

D. THE STATE'S DECISION – REVISITED

The state may be interested in the probability that a person using drugs is receiving the benefit. We can solve this by reversing the conditioning and applying Bayes Theorem [8]. Reducing the population from "everyone" to "everyone who tests negative for drugs" may be thought of as: "drug users who test negative" divided by "everyone who tests negative" [9].

If the state were to use a drug test with $P_F = (1-P_T) = .5\%$ and 1 percent of the applicants use drugs, then the probability a drug user is receiving assistance is less than 1 in 10,000. If 10 percent of the applicants use drugs, then the probability a drug user is receiving assistance remains less than 1 in 1,000.